LV. *An Account of Dr.* Bohadſch's *Treatiſe, communicated to the* Royal Society, *intituled,* Diſſertatio philoſophico-medica de utilitate electriſationis in curandis morbis, *printed at* Prague 1751: *extracted and tranſlated from the* Latin *by Mr.* Wm. Watſon, *F. R. S.*

Read Jan. 23, 1752. THE treatiſe, of which I now offer an extract to the Royal Society, was ſent hither from my friend and correſpondent Profeſſor Boſe at Wittemberg, who is always deſirous of teſtifying his zeal and attachment to the Royal Society, by communicating to us whatever he imagines worthy our notice. The author of this treatiſe, Dr. Bohadſch, is a Bohemian, a very learned and ingenious gentleman, who, while he was in England about two years ſince, was frequently at our meetings, and was very converſant with, and much eſteemed by, many of our body, from whom he received very great civilities. He was more particularly taken notice of by his Grace the late Duke of Richmond, whoſe loſs we yet lament: His Grace did me the honour to recommend him to me, as a gentleman not leſs remarkable for his great knowledge in various kinds of literature, than for his exemplary modeſty: and it is with great pleaſure that I lay before you what comes from the hands of one, for whom I have ſo great an eſteem.

This treatiſe, from its title, promiſes only an account of the advantages of electriſation in medicine: but this is not the whole of which it treats; it exhibits alſo a ſeries of obſervations of the effects of electricity upon both ſolid and fluid bodies, upon animals in a ſtate of health, as well as upon thoſe diſtemper'd. Of each of theſe I propoſe to lay before you ſome account in the courſe of this extract.

Our author firſt takes notice, that electricity, being continued for ſome hours, leſſens the weight of the body electrified. He exemplifies this firſt on fluid bodies; two equal portions of which, before electriſing, he accurately weighs; and then the difference between theſe two portions, one of which has been electriſed between four and five hours, and the other, though in the ſame room, not electriſed at all, is attributed to the operation of the electric effluvia. His globes, I obſerve, are rubbed by the hands of an aſſiſtant.

Four ounces of river water expoſed in a glaſs veſſel of four inches diameter were electriſed five hours, and loſt in their weight eight grains.

Four ounces of river water, in the ſame kind of glaſs, but not electriſed, loſt in the ſame time only three grains. The difference then to be attributed to the electricity was five grains. The like quantities of the fluids hereafter mentioned were expoſed, as the water was, and the effects were as follow.

	Grains
Oil of olives, by electriſing, loſt . .	o
Vinegar	ij.
Water impregnated with nitre . .	iij.
New milk	iv.

Urine

	Grains
Urine . . .	vij.
Spirit of turpentine . . .	vij.
Spirit of wine . . .	viij.
Volatile ſpirit of ſal ammoniac . .	xi.

Four ounces of rain-water were expoſed in a tin veſſel of four inches in diameter, and electriſed as before, and the loſs was ten grains.

A like quantity of the ſame water under the ſame circumſtances, electriſing excepted, loſt only three grains. In this inſtance, the effect to be attributed to the electriſing was ſeven grains.

He then put to the trial, in a tin veſſel inſtead of a glaſs one, the ſeveral liquors before-mentioned; and except the oil of olives, the water impregnated with nitre, and the milk, the reſt loſt by electriſing a few grains more of their weight.

He afterwards expoſed three ounces and a half of river water in a glaſs veſſel, whoſe diameter was but an inch, and this loſt by a like electriſation only two grains. The ſame quantity of water, under the ſame circumſtances, electriſing excepted, loſt in the ſame time nothing of its weight: ſo that, in this inſtance, the effect to be attributed to the electricity was two grains. The various liquors before-mention'd were likewiſe electriſed in a veſſel of the like capacity as that containing the laſt water, and they loſt much leſs by the operation, than when they were expoſed under a larger ſurface. All theſe liquors, electriſed for the ſpace of ten hours, as well in veſſels of tin, as of glaſs well ſtopped, loſt nothing of their weight. From hence our author concludes, 1. That electricity

augments the natural evaporation of liquors, unleſs thoſe of a viſcous kind, as oil of olives, which from their tenacity loſe nothing of their weight. 2. That electricity increaſes the evaporation of liquors in proportion as they are more or leſs volatile: for volatile ſpirit of ſal ammoniac ſuffered a greater evaporation, than either ſpirit of wine or ſpirit of turpentine. Theſe laſt loſt more than water, and even this loſt more than the ſolution of nitre and the vinegar, as we ſee by the experiments. 3. That electricity operates moſt in thoſe veſſels, which are moſt permeable to its effluvia, *viz.* in veſſels of metal more than thoſe of glaſs. 5. That the effects of electriſing are not obſerved in veſſels cloſely ſtopped.

He afterwards put to the trial ſeveral ſubſtances of a more ſolid form. A pear weighing four ounces and a half, electriſed five hours, loſt of its weight 6 grains. A pear of the ſame kind, not electriſed, loſt nothing: ſo that the difference ariſing from electrification was 6 grains. He then ſubjected other ſubſtances to this trial, and the effects were as follow.

	Grains.
A piece of dry oak loſt . . .	o
A bunch of keys	o
Two new-laid eggs . .	ij
A piece of new crum of bread . .	iij
——— raw beef	iij
——— ſalt beef . . .	iv
——— ſponge lightly moiſten'd . .	vi
A bunch of grapes . . .	vij

From

From theſe experiments our author obſerves, that the electricity diminiſhes the weight of ſolid bodies, if theſe are impregnated with humours liable to evaporate: for the dry wood, metals, and other bodies, which ſeem to have no fluids, loſe nothing of their weight; and therefore it is only upon the fluids in them that the electricity operates.

Our author then exhibits ſome experiments made by perſons of credit, in order to diſcover, whether or no electricity would accelerate the growth of plants; and from ſeveral trials found that it did. There then follows a ſeries of experiments, which prove, that electricity augments the tranſpiration of animals. Theſe experiments were made upon puppies, pigeons, yellowhammers, and chaffinches; and the effects of thoſe electriſed, compared with thoſe of the ſame kind, which were not, evince, that electricity does increaſe the tranſpiration of animals. Our author here has annexed ſeveral curious tables, comparing the loſs of weight of the animals, while electriſing, to what they loſe in the ſame time without electriſing. Whoever therefore is deſirous of peruſing them, muſt conſult the work itſelf.

Dr. Bohadſch proceeds to give us a theory of thoſe diſtempers, in which electricity ſeems to have the greateſt effects. He confines himſelf however more particularly to the *hemiplegia*; of which diſtemper he gives us the hiſtory, correſponding with what we find in the beſt medical writers. He likewiſe gives us the uſual method of cure, and ſhews, that the attempts of relieving this malady by electricity, nearly ſquare intentionally with the remedies moſt celebrated in practice. That the electrical ſparks and

and commotion produce the ſame effect, though in a more powerful manner, as warm ſulphureous baths, frictions, ſinapiſms, ſtinging with nettles, *&c.* generally made uſe of in the cure of this diſtemper. This reaſoning does very well in theory; but I ſhould have been glad to have ſeen it juſtified by practice, and his own obſervations. But inſtead of theſe, our author contents himſelf with giving us over again the lying ſtories of Pivati: to which he has added the four caſes publiſhed ſome time ſince, and tranſmitted to the Royal Society, as well as to myſelf, by Profeſſor Sauvages, of Montpellier. Theſe caſes indeed do credit to electricity, but we want more of them.

Our author finiſhes this diſſertation, by deducing ſeveral concluſions from what he has premiſed, and theſe are as follow.

I. That electricity may be advantageouſly applied to medicinal purpoſes.

II. That it augments the natural tranſpiration of animals.

III. That this acceleration of tranſpiration in men is through the exhaling capillary veſſels, and not through the ſubcutaneous glands.

IV. That the nervous fluid may be called the electrical fluid.

V. That the nerves ſubſervient to ſenſation are not different from thoſe ſubſervient to motion.

VI. That the immediate cauſe of the *hemiplegia* is the immeability of the nervous fluid through the nerves.

VII. That of all other diſtempers the *hemiplegia* ſeems moſt properly the object of electricity.

VIII.

VIII. That it may be of uſe alſo in intermitting fevers.

IX. That a palſy in the left ſide of the body is owing to the right ſide of the brain, and *vice verſa*.

X. That anger, the parent of numerous evils, is ſometimes uſeful to paralytics.

XI. That as long as the paralytic limbs are rigid, it it is an argument, that the burſal ligaments of the joints, and the ſheaths of the tendons, are deficient in the fluid, adapted by nature for their lubrication.

XII. That every ſpecies of palſy does not ariſe from the nerves being either obſtructed, or compreſſed.

In concluding this account, I cannot help obſerving, that, contrary to his uſual modeſty, our author has been guilty of a ſlight plagiariſm in this work; as, without quoting his author, he has tranſlated from the French into Latin the tables above-mention'd, as well as his experiments, proving that electricity forwards vegetation, from our worthy brother the Abbé Nollet's treatiſe, intitled, *Recherches ſur les cauſes particulieres dés phenomenons electriques.* See Nollet pag. 358 to 380. Dr. Bohadſch has only alter'd the date 1747 to 1750. But it is to be remember'd, that theſe accounts were calculated for the meridian of Prague, and not for thoſe of London and Paris.